

# ENGINEERING Advantage

College of Engineering, Cal Poly, San Luis Obispo, California, Fall 2006

## CENG teams learn by competing

*2006 was another banner year for engineering clubs*

"Cal Poly: Choice of Champions" was the theme of the 2006 Open House and thanks to the hard work put in by club teams from the College of Engineering, that wasn't mere hyperbole. From designing supersonic aircraft to pedaling high-tech bicycles, and from building a simple but efficient water filtration system to organizing unusually large student chapters, Cal Poly engineering clubs garnered remarkable results at international, national and regional competitions in 2006.

Led by two clubs which have built dynasties that rival the 1927 Yankees — the Society of Women Engineers which was named Best Student Chapter in the nation for an unprecedented fifth straight year and the Society of Environmental Engineers, which was named by the Air & Waste Management Association as the nation's Best Student Chapter for mid-size universities for a sixth straight year, CENG students left their mark on dozens of prestigious competitions.

"Not only does this level of success reflect the quality of our students, it also demonstrates that we offer our students educational experience beyond the classroom," says dean **Mohammad Noori**. "And it's a wonderful reflection on our faculty as to their

Please see CENG TEAMS, Page 6

Five presidents of Cal Poly's Society of Women Engineers were present at SWE's 2006 annual convention. From left: Lisa Dakis ('07), Tracy Van Leavens ('03), Betsy Sale ('06), Malia Francisco ('05) and Jennifer Harris ('02). At far right is Cal Poly Women's Engineering Director Helene Finger.



Upper left: Cal Poly's winning Chainless Challenge team included, from left to right: Kyle Huth, Brian Hachtmann, John Holcomb and Jenson Hovsepian. Above: Competing for the first time in 13 years, Cal Poly's Supermileage Team averaged 861 miles per gallon and finished a strong sixth out of 22 teams. At right: Members of Cal Poly's Design/Build/Fly team pose with their design that finished third in a national contest.



### Features

- CENG clubs continue to excel in national competitions
- Joe Donahoo named CENG's Director of Advancement
- Maintain the Momentum Campaign update

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- Magazine ranks Cal Poly Best in the West — again
- Sheikh to lead new Project Based Learning Institute

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- Chen is new chair of MATE
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- 17 Society of Black Engineers and Scientists members attend national convention
- Engineering Student Council

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- Rory Cooper to lead Quality of Life Technology Center
- Dale Nix supports future generations of engineers
- Paulo Younse tests NASA robots near Arctic Circle



## A message from Kathleen Holmgren, Chair Maintain the Momentum

"I'm delighted by the exciting changes I see at the College of Engineering; in fact, I believe we stand at an opportune moment. Not only can we capitalize on our record as one of the nation's leading engineering schools, but we should also seize the chance to reshape engineering education to better meet the needs of industry and society.



Kathleen Holmgren

Our advancement goals include more endowed professorships, increased funds for student scholarships, support for the development of new academic programs and a boost in alumni giving. In particular, we want to generate more resources and acquire state-of-the-art technology and equipment for the Bonderson Projects Center and Engineering IV facilities.

In the long term, it is my sincere hope that we will establish an endowed College of Engineering, which will significantly enhance our ability to recruit outstanding students, support our faculty, and keep our programs on the cutting edge of new developments.

The commitment, dedication, and vision of Dean Noori, and so many other faculty, staff, friends and alumni bode well for the future of the College of Engineering. I feel truly honored to be an active part of it.



Kathleen Holmgren (IE '80)  
Recently Retired Sr. Vice President  
Sun Microsystems

## ENGINEERING Advantage

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Occupancy for the three-story, 104,000 square foot Engineering IV building is scheduled to begin in February.



## College of Engineering welcomes Joe Donahoo as its first Assistant Dean and Executive Director of Advancement

"Potential energy. Academic excellence." That's what excites **Joseph Donahoo** about becoming the Assistant Dean and Executive Director of Advancement for the College of Engineering.

"Not all schools can boast about being at the top, but Cal Poly has a history of excellence coupled with incredible promise. Those are key ingredients for future successes," Donahoo claims. "I am impressed by the team that is in place, and the pervasive can-do attitude. That is the best environment for my work."

Donahoo comes to Cal Poly from the University of Miami, where he served as Assistant Dean for External Relations and Development for the College of Engineering and the Executive Director of Johnson A Edosomwan Leadership Institute. He brings more than eight years of experience in engineering and higher education development and leadership, along with three years in the financial services industry.

In his new position at Cal Poly, Donahoo will be responsible for securing private support for the College of Engineering and working with the dean, college administrators, advancement staff, and faculty on outreach and partnership efforts with alumni and corporate constituencies.

"The college is poised to rise to the next level of prominence, and we believe that Joe Donahoo will help propel us toward a new era of achievement and learning for our students, and excellence in teaching and research on the part



Joseph Donahoo, left, CENG's new Director of Advancement, has been working as Assistant Dean for External Relations at the University of Miami.

of our faculty," comments Dean **Mohammad Noori**. "We're delighted to have an individual of his calibre join us."

Donahoo holds a bachelor's degree in Finance from the University of Dayton and a master's degree in Computer Information Systems from the University of Miami.





## Cal Poly ranked Best in the West for 14th straight year

*College of Engineering is No. 2 in nation on magazine's annual list*

For the 14th year in a row, Cal Poly has been rated the best public-master's university in the West by *U.S. News & World Report*, in its 2007 America's Best Colleges guidebook.

Earning a spot in the magazine's Best Undergraduate Engineering Programs — for schools whose highest degree is a bachelor's or master's — Cal Poly's College of Engineering ranked as the No. 2 program at a public school, behind only the United States Military Academy and the United States Naval Academy, which tied for first.

A number of College of Engineering programs also ranked high in the Best Undergraduate Engineering Programs in their individual specialty categories. CENG departments recognized by the magazine were:

- Electrical Engineering (top program at a public university).
- Industrial & Manufacturing Engineering (top program at a public university).
- Computer Science (No. 2 program at a public university).
- Aerospace Engineering (No. 3 program at a public university).

"Perhaps the most important gauge of the effectiveness of Cal Poly's educational programs is how well our graduates do, their success in the real world," says Cal Poly President **Warren Baker**. "We hear that our graduates are doing great things and we take pride in that. Getting a ranking in *U.S. News* for the 14th straight year, however, helps to validate the quality of our programs and the success of our gifted faculty in preparing students to meet the challenges they will face head-on."

Cal Poly also made the list of programs to watch in the category Undergraduate Research/Creative Programs, which recognizes university programs in which "students do intensive and self-directed research."



Paul Bonderson (EE '75) checks out the progress of the Bonderson Projects Center in September.

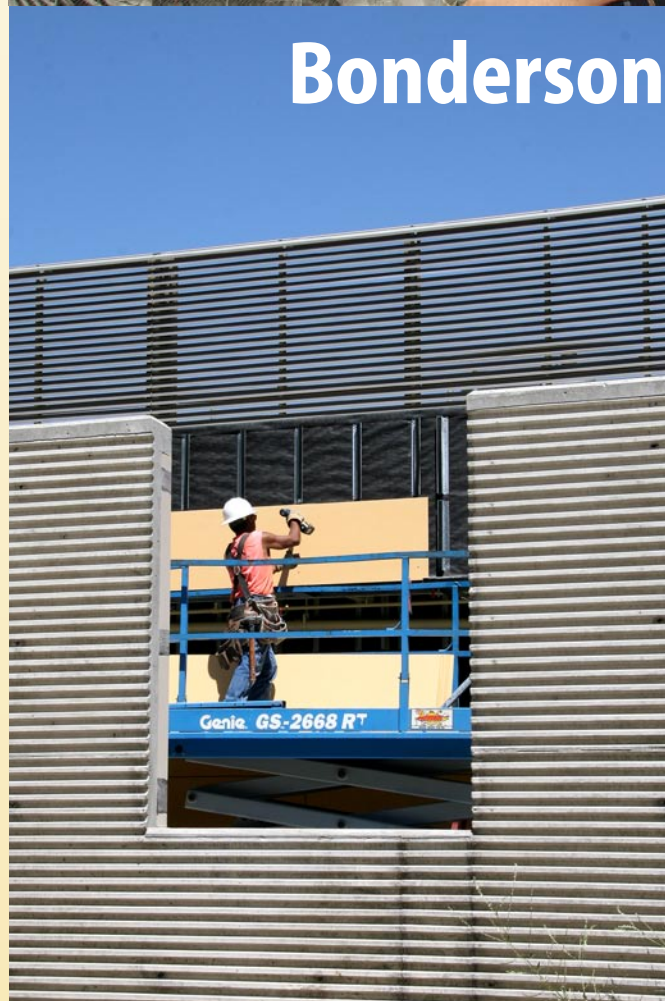
## Bonderson Projects Center opens doors in November

Nineteen months after breaking ground in a parking lot north of the Robert E. Kennedy library, **Paul Bonderson's** \$8.2 million gift to Cal Poly students — the Bonderson Projects Center — will be unveiled at a dedication ceremony on November 2.

The 1-1/2 story concrete, metal and glass building will provide almost 19,000 square feet of specialized space for individual and collaborative student projects, including group work and assembly areas, a telecommunications laboratory, a networking laboratory, a robotics lab, a mechanical device lab, an environmental lab, computer modeling and systems labs, and supporting shop areas. The 1975 Electrical Engineering graduate and his wife, Sandy, initially dedicated \$5 million for the building in 2001, and then added a pledge for an additional \$3.2 million to secure their vision for the center.

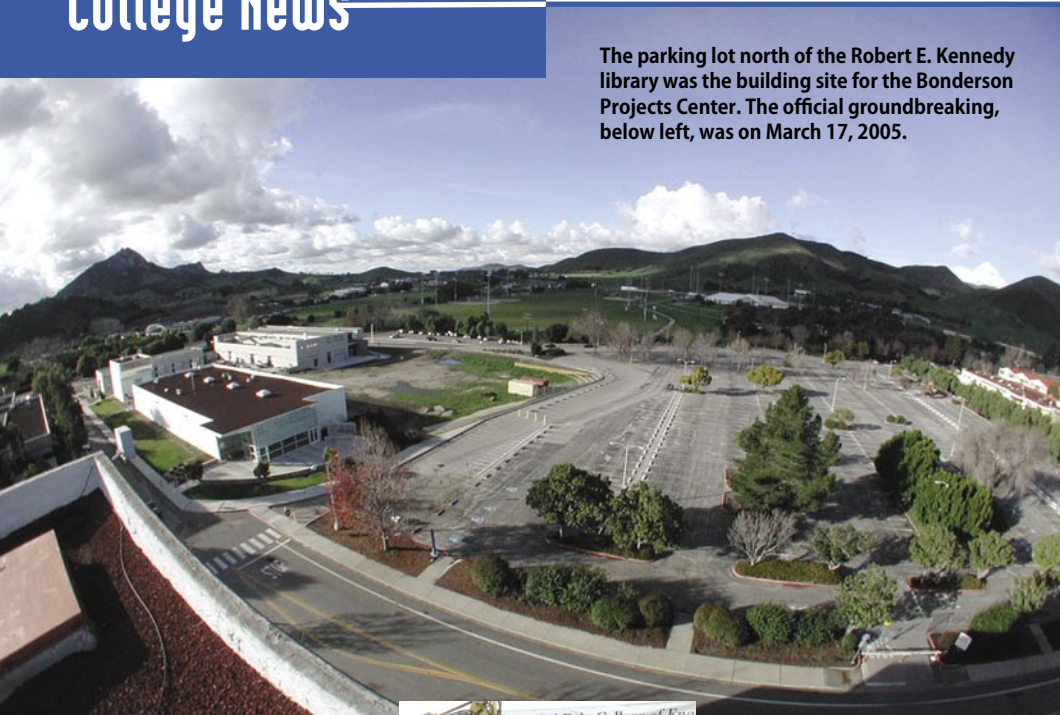
"This is the beginning of a new era for the College of Engineering," says dean **Mohammad Noori**. "This remarkable new facility will help facilitate multidisciplinary educational experiences for our students and attract more industry support for the college."

Left: Seen through an observation "window" cut into the outer wall of the work yard, a workman installs one of the concrete panels that comprise the shell of the Bonderson Projects Center. Following pages: The Bonderson building's construction is shown in a photo timeline starting in March, 2005.





The parking lot north of the Robert E. Kennedy library was the building site for the Bonderson Projects Center. The official groundbreaking, below left, was on March 17, 2005.



March 2005



April 2005



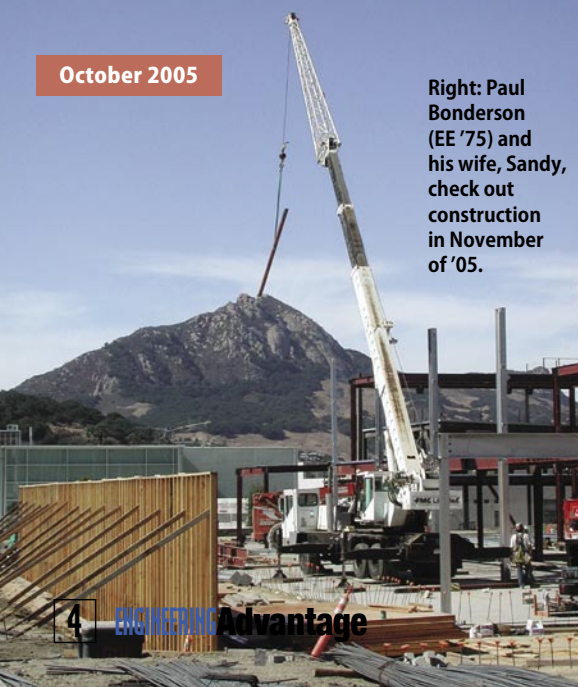
August 2005



September 2005



January 2006



October 2005

Right: Paul Bonderson (EE '75) and his wife, Sandy, check out construction in November of '05.



November 2005







June 2005



March 2006

May 2006



July 2006



June 2006



Left: A wall of glass in the lobby provides a dramatic view of Engineering IV, which is scheduled to open in February '07.



August 2006



September 2006





Dr. Zahed Sheikh is the interim director of the Project Based Learning Institute.

## Project Based Learning Institute nears launch

*Sheikh named first PBL interim director*

The vision of the College of Engineering's Project Based Learning Institute came into sharper focus during the summer.

As construction crews put the finishing touches on the Bonderson Projects Center, the institute's future home, Dean **Mohammad Noori** announced Dr. **Zahed Sheikh** as the first interim director of the new program designed to enhance the partnership between Cal Poly and private industry.

"The goal for the institute is to take our acclaimed 'Learn by Doing' engineering education to the next level by attracting significant industry support for graduate, undergraduate and faculty project activities and to establish a world-class industry-university partnership," Noori says. "Dr. Sheikh will be responsible for coordinating all project-based activities in the College of Engineering, facilitating and overseeing project activities in the new Bonderson Projects Center and other research facilities in the college, expanding the involvement of industry and government agencies in identifying and conducting projects, and enhancing professional development opportunities for faculty."

Sheikh, who recently served as project leader and director of marketing for Creare Inc., a research and development company that focuses on fluid dynamics and heat transfer, holds a master's degree and Ph.D. in mechanical engineering from the University of Iowa. A former vice president of business development for Mikros Technologies, Sheikh says he has "big dreams" for the institute.

"The potential is truly exciting," he says. "Cal Poly already has the reputation in industry for producing 'out-of-the box' productive engineers, and the institute is designed to enhance and nurture the already strong relationships Cal Poly has with industry. We want to support the complete life cycle of a project, from identifying the industry partner, project development, testing, documentation and follow-up."



Cal Poly's "Secretariat" took first place in the design portion and fourth place overall at the American Society of Mechanical Engineers (ASME) Human Powered Vehicle Challenge-West Coast competition.

## CENG Teams

From Page 1

dedication to our students."

AERO junior **Sky Sartorius**, a member of the Cal Poly team that took third among 40 universities at the 2006 Design/Build/Fly contest, sees great value in the engineering competitions.

"It's cool to do well against international engineering schools that put much more emphasis and resources into the competition than we do," he says. "It really makes you realize the value of a Cal Poly education. We all felt really good about Poly after competing against the best schools in the world."

Here's a closer look at some CENG club highlights for 2006:

### Cal Poly SWE best in nation — again

"Our SWE members continue to do amazing things and I'm very, very proud that we were recognized as the Best Student Chapter in the country for the fifth straight year," says **Helene Finger**, CENG's Director of Women's Engineering. "The amount of work our students put in is phenomenal and it's wonderful to receive national recognition."

Cal Poly, which finished ahead of second-place Colorado School of Mines and third-place Cornell University in the Best Student Chapter competition, received other awards at the SWE National Convention in Kansas City in October, including:

- Membership Program Award for Large Collegiate Section
- Best Collegiate Membership Recruitment Campaign
- Collegiate Upgrade Award
- Best Collegiate Section Website
- Boeing Multicultural Program Award
- Best Region Collegiate Newsletter Award (Region B)
- Cal Poly's TeamTech, which worked with Northrup Grumman on the design for a jet engine inspection sys-

tem, finished second to Emory Riddle University.

### Cal Poly SENVE best chapter in nation

For six straight years Cal Poly's Society of Environmental Engineers (SENVE) has been named by the Air & Waste Management Association as the nation's Best Student Chapter for mid-size universities. No other college in the U.S. can boast such a winning record.

In addition, the group earned 2nd place at the 2006 "Water Treatment from Your Kitchen...and Beyond" competition sponsored by the American Society of Civil Engineers.

The contest scenario was set in a hypothetical South American village that has no access to chemical treatment components, with the wastewater posed as effluent from a nearby river that has been contaminated by industrial and agricultural runoff.

The students were required to design a wastewater treatment unit that is able to convey wastewater 20 feet to the treatment area without using electricity or fueled-powered equipment. The key purpose of the competition is to exercise sustainable design while producing safe drinking water.

The portable Cal Poly treatment unit relied on salvage materials from a junkyard and no chemicals. Cal Poly achieved the cleanest water in the contest by first removing solids with an organic coagulant, and then using sand and gravel filtration to remove the dissolved solids. The final stage of treatment included using activated carbon filtration for water polishing and color removal and stream flow for aeration.

### Designed, built and flown to third place

They designed it in the labs at Cal Poly, tested it on the runway of the Educational Flight Range in San Luis Obispo, and flew it on the plains of Wichita, Kansas. At the end of the Cessna/ONR student Design/Build/Fly competition last April, Cal Poly's 24" Wood Team had taken third in the nation.





Above: Cal Poly's Design/Build/Fly team's radio controlled model takes off.  
Left: Cal Poly SENVE earned the Best Student Chapter Award and second place at the 2006 "Water Treatment from Your Kitchen...and Beyond" competition.

The American Institute of Aeronautics & Astronautics annually sponsors the contest to provide a real-world aircraft design experience for engineering students by giving them the opportunity to validate their analytic studies.

The event requires student teams to design, fabricate, and demonstrate the flight capabilities of an unmanned, electric powered, radio controlled aircraft which can best meet the specified mission profile. The primary design objective of the 2006 competition was to fly three diverse payloads: 48 tennis balls, two 2-liter bottles of water, and a 4"x4"x24" wooden block. Scores were based on cargo loading and unloading time.

## Cal Poly's "chainless" gang dominates

Elegant engineering design coupled with the spirit to win earned five mechanical engineering students a first in endurance, first in sprints, first overall, and \$11,500 in prize money at the Chainless Challenge, a contest sponsored by Parker Hannifin to inspire creative hydraulic design among the ten Parker-supported schools.

The bicycle-like vehicle built by **Erin Glines, Brian Hachtmann, John Holcomb, Jensen Hovsepian** and **Kyle Huth** uses a biodegradable hydraulic fluid, rather than a chain, for propulsion. The winnings from the competition will be used to upgrade and enhance the laboratory experience for all Cal Poly mechanical engineers.

## Concrete Canoe team 2nd in nation

They call it "The America's Cup of Civil Engineering." The event was the National Concrete Canoe Competition, involving 400 students from 23 universities, and sponsored by the American Society of Civil Engineers' (ASCE). It was held June 15-17 at Oklahoma State University in Stillwater, OK.

The Cal Poly team and its entry, the Katana, bested Clemson, UC Berkeley and other entrants to take the silver medal finish, behind only the University of Wisconsin-Madison.

The contest objective: to design, build and race canoes made of concrete. The competing students are

scored on categories including the aesthetics and structural integrity of their canoe, a technical design paper, an academic presentation, and the ultimate test: the concrete canoe race.

This year's Cal Poly entry was judged "Best Overall Product." The Katana is an elegant white, 250-pound, 21.25-foot-long canoe, according to civil engineering professors **Garrett Hall** and **Eric Kasper**, the team advisors.

Cal Poly also took third in Women's Endurance Race, fifth in Men's Endurance, third in Women's Sprint, fourth in Men's Sprint, and eighth in Co-ed Sprint.

## HPV faced "Challenge" on its own turf

Last April, Cal Poly's sleek, aluminum-framed, recumbent vehicle took the field on campus against dozens of HPV's from universities throughout the western U.S.

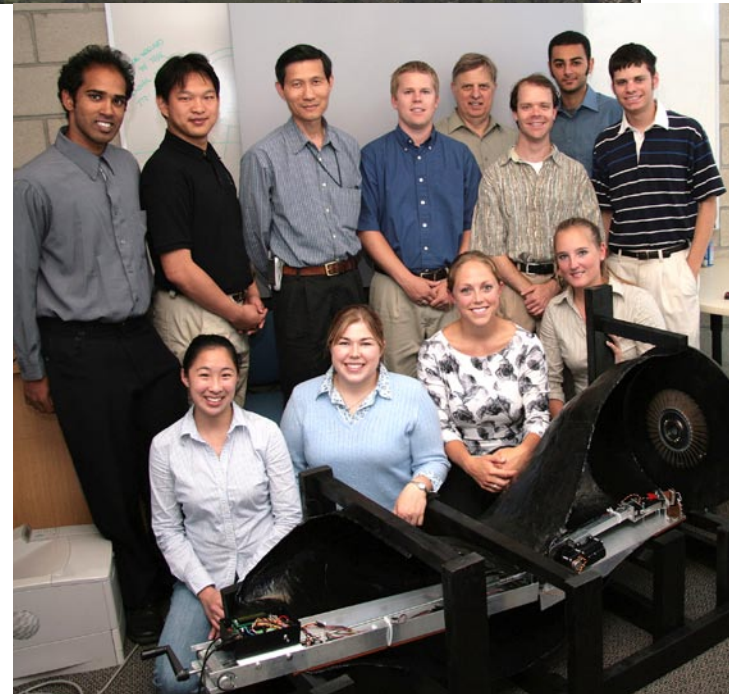
Cal Poly has participated in the American Society of Mechanical Engineers (ASME) Human Powered Vehicle Challenge-West Coast Competition since its inception in 1978, and took first overall in both 2004 and 2005. This year Cal Poly hosted the event.

Comprised of mechanical and aerospace undergraduates, the 2006 team designed and built a "beauty" that earned First Place in the design portion of the competition. Although hampered by an unforeseen ergonomic issue in the sprints, and stung with a broken fairing mount and chain the endurance race, the Cal Poly vehicle scored a fourth place overall finish.

Human Powered Vehicles are aerodynamic and highly engineered, some achieving speeds over 60 mph. The competition addresses engineering problem-solving, and the vehicles are judged on design, safety and performance.

## SAE team travels far, wide for races

Cal Poly's Society of Automotive Engineers not only design and build vehicles — they also race them. In June 2006, students headed to Fontana, Portland, OR, and Marshall, MI, to race in Formula, Mini-Baja, and Supermileage competitions.



Cal Poly TeamTech finished second in the nation at the SWE National Convention for its design of a jet engine inspection system.

At Formula car competition, Cal Poly outperformed all other California schools and placed 12th overall, out of 70 entrants. The team also placed third in the skid pad division, fourth in design, and 11th in the endurance-economy.

Cal Poly was also the best California team in the Mini Baja contest. The Mustang team placed eighth overall out of 83 universities. Cal Poly's vehicle was first in hill climb, third in acceleration, fifth in sales, eighth in endurance and 12th in cost.

## Thirteen years later, another super job

The Supermileage Team competed for the first time since 1993 at the Marshall Proving Grounds in Michigan. Led by ME undergraduate **Jason Kempenaar**, the group designed and fabricated a stunning, fully faired single-occupant vehicle. In a field consisting of 22 university competitors, Cal Poly took sixth overall. The high point was the team finish in Fuel Economy: 861 miles per gallon.

"We were one of only two schools with a composite roll bar and monocoque chassis," explained Kempenaar. "And we definitely turned heads with the quality of the lay-ups and the surface finish."





Prospective General and Biomedical Engineering students and their parents receive an update on the construction of the Bonderson Projects Center and Engineering IV, which will house several new labs for the department.



The Society of Black Engineers and Scientists (SBES) was one of more than 200 Cal Poly clubs that sponsored activities, demonstrations and booths at Open House 2006.

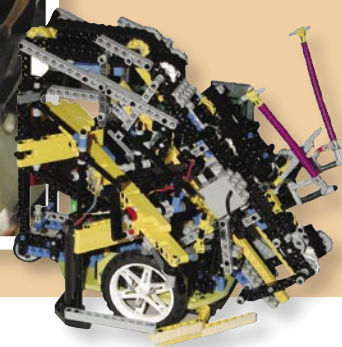
## Open House 2006



As usual, Open House attracted more than 40,000 people to San Luis Obispo and the Cal Poly campus in late April. Left and below: RoboRodentia, a competition between robots built by teams of Cal Poly students and members of the community, continued to pack more than 1,500 spectators into the Rec Center. The event, sponsored by the Institute of Electrical and Electronic Engineers Computer Society (IEEE-CS), is considered to be the second most popular event at Open House behind the tractor pull.



Above: Civil Engineering students Kira Bulger, left, and Kathleen Allwine displayed Cal Poly's concrete canoe at open house. Right: Bulger and Kevin O'Sullivan load the canoe onto its trailer at the end of the day.



Legos were the building material of choice on this RoboRodentia entry.



# EAB 2006

## Engineering Awards Banquet

### OUTSTANDING SENIORS

#### Academic Excellence

Catherine Stevens	Aerospace Engineering
Jack Brewer	Civil Engineering
Christopher Pontiga	Computer Engineering
Michael Cole	Computer Science
Michael Klein	Electrical Engineering
Megan Snyder	Environmental Engineering
Cassidy Levy	General Engineering
Aaron Keep	Industrial Engineering
Matthew Kight	Manufacturing Engineering
Abram Farris	Materials Engineering
Daniel Kawano	Mechanical Engineering
Lianne Williams	Mechanical Engineering
Matthew Cechini	Software Engineering

#### Contributions to the College of Engineering

Erin Shaw	Aerospace Engineering
Betsy Sale	Civil Engineering
Christopher Pontiga	Computer Engineering
Rachelle Hom	Computer Science
Michael Klein	Electrical Engineering
Andrea Ramirez	Environmental Engineering
Elizabeth Moore	General Engineering/Biomed
James Webster	Industrial Engineering
John Benzinger	Manufacturing Engineering

#### Contributions to the University

Michael House	Aerospace Engineering
Kira Bulger	Civil Engineering
Jonathan Joson	Computer Engineering
James Skorupski	Computer Science
Robert Johnson	Electrical Engineering
Joe Vaccaro	Electrical Engineering
Stephen Huang	Environmental Engineering
Chris Gocong	General Engineering/Biomed
Jenny Gaunt	Industrial Engineering
Max Foorman	Manufacturing Engineering
Austin Quig-Hartman	Mechanical Engineering

#### Service to the Community

Andrea Shern	Civil Engineering
Jennifer Overgaag	Computer Engineering
Jimmy Hua	Computer Science
Alexis Hultine	Industrial Engineering
Matthew Kight	Manufacturing Engineering
Sarah Brum	Materials Engineering

### OUTSTANDING GRADUATE STUDENTS

#### Outstanding M.S. Graduates

Agapito Diaz	Civil/Environmental Engineering
D. Krishnamurthy	Computer Science
John Becker	Engineering
Weiming Li	Electrical Engineering
Sean Spivey	Mechanical Engineering

#### Outstanding B.S./M.S. Graduates for Service

Eileen Mick	B.S./M.S. Environmental Eng.
Danielle Norris	B.S./M.S. Engineering/Biomedical
David Getchal	M.S. Materials Engineering

College-wide honors went to, from left: Jennifer Overgaag (Outstanding Senior for Community Service), Joe Vaccaro (Outstanding Senior for Contributions to the University), Betsy Sale (Outstanding Senior for Contributions to the College of Engineering), Lianne Williams (Academic Excellence) and Daniel Kawano (Academic Excellence).



#### Outstanding B.S./M.S. Graduates

Donald Bowles	Aerospace Engineering
Sean Kirby	Civil/Environmental Engineering
Roger Tiu	Computer Eng./Electrical Eng.
Mark Gabel	Computer Science
Keith Victorine	General Eng./Engineering
Brandon Wong	Industrial Engineering
Patrick Chow	Mechanical Engineering

### OUTSTANDING FACULTY & STAFF

William R. Murray (ME)	Northrop Grumman Excellence in Teaching Award
Damian Kachlakev (CE/ENVE)	Northrop Grumman Excellence in Research & Development Award
Andrew Davol (ME)	Raytheon Excellence in Teaching and Applied Research Award
William R. Murray (ME)	Lockheed Martin Endowed Professor
Chris Pascual (ME)	The Wingate Foundation Award for Excellence in Heating, Ventilation and Air Conditioning

#### Outstanding Staff Award

Ladd Caine	Industrial & Manufacturing Eng.
Dan Powell	Aerospace Engineering

#### Outstanding Achievement in Teaching

Goro Kato	(College of Science & Mathematics)
Melody DeMeritt	(College of Liberal Arts)

#### Outstanding Club Advisor

John Seng	IEEE
(CS)	



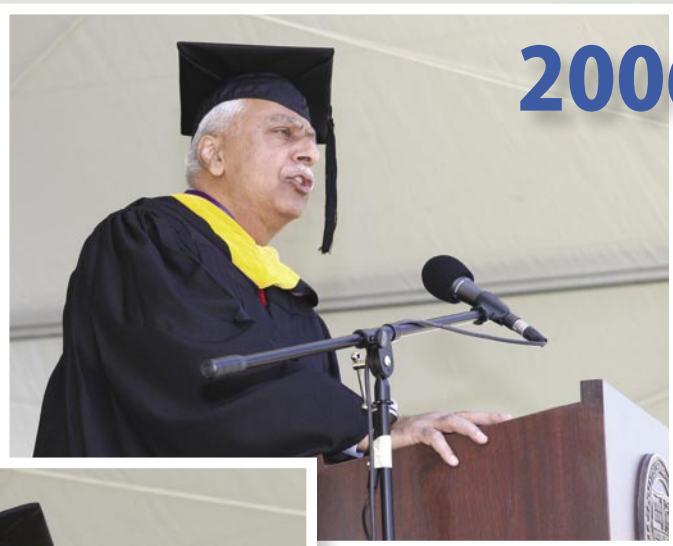
Above: Damian Kachlakev (CE/ENVE), left, received the Northrop Grumman Excellence in Teaching Award from Dr. Charles Volk, vice president of Northrop Grumman Navigation Systems. Left: William Murray (ME) was recognized as the Lockheed Martin Endowed Professor by Ed Burnett, right, the company's Senior Fellow.

CENG seniors honored for Outstanding Contributions to the University included, left to right: James Skorupski (CS), Joe Vaccaro (EE), Michael House (AERO), Kira Bulger (CE/ENVE), Jonathan Joson (CPE), and Stephen Huang (ENVE).

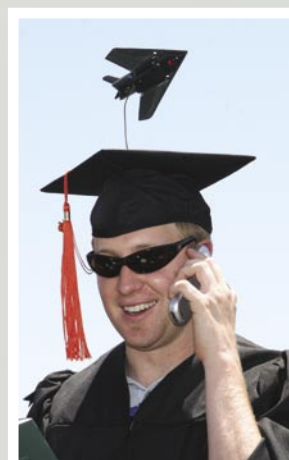




## 2006 Commencement



With Alex G. Spanos Stadium undergoing extensive renovation, the families and friends of 869 College of Engineering graduates packed the Upper Sports Field for the 2006 Spring Commencement ceremony in June. **Jeet Bindra**, president of global refining for Chevron Corporation, delivered the keynote address while civil engineering student **Betsy Sale** spoke for the happy CENG graduates.



Ryan Gist made it easy to spot the Aerospace Engineering graduates. Gist was one of 31 AERO students to receive a degree in June.

Above: Jeet Bindra, president of global refining for Chevron, delivers the keynote address. Left: Civil Engineering graduate Betsy Sale was the student speaker.



It was the first Cal Poly commencement ceremony for College of Engineering Dean Mohammad Noori.



Eight hundred and sixty-nine CENG students wore the cap and gown at Spring Commencement.



## Cal Poly receives \$1.8 million grant for research park

Building an on-campus research park is one step closer to reality thanks to a \$1.8 million grant from the Economic Development Administration, part of the U.S. Department of Commerce. Engineering students and faculty, in particular, stand to benefit from the collaborative relationships that the tech park will foster between the educational and business communities.

A project of Cal Poly and the California Central Coast Research Partnership (C3RP), the Cal Poly Technology Park will serve as a home on campus for technology-based businesses—particularly firms engaged in applied research and development.

It is expected to create 380 jobs and generate \$115 million in private investment.

According to **Susan Opava**, dean of Research and Graduate Programs, "The grant will enable us to construct a multi-tenant building and demonstrate the feasibility and value of having R&D companies on campus in close working relationships with faculty and students." While the grant from EDA is a significant milestone, Opava noted that because of the increased costs of construction, the project still has a funding shortfall.

For more information, go to <http://www.c3rp.org/>.



## Here comes the sun

SunEdison project manager Bill Campbell inspects some of the 1,008 solar panels installed on the roof of Cal Poly's Engineering West building over the summer. The 14,000 square-foot system, which is the largest solar array in San Luis Obispo County, is expected to provide at least 25 percent of Engineering West's electrical needs and will save the university around \$5,000 a year. The solar photo voltaic panels will average 148,000 kilowatts per hour, or "about as much to power 25 large homes for a year," Campbell says. SunEdison will own and operate the system, with Cal Poly purchasing the electricity at a reduced cost. "We're hoping this demonstration project is the start of a win-win relationship between SunEdison and the CSU system," Campbell says. "Since Cal Poly has such strong engineering and architecture programs, this was a great place to start our program with the CSU."

## Chaoyang University of Technology



## Two premier universities meet to discuss collaboration and exchange

Last August, Cal Poly welcomed a distinguished delegation from Chaoyang University of Technology, recognized as the top private polytechnic university in Taiwan. Chaoyang President Chin Chung-Jen stands to the right of Cal Poly President Warren Baker (center) in the photo above.

## Leading Japanese seismologist visits Cal Poly

Japan's equivalent to the U.S. chair of the National Academy of Engineering visited Cal Poly last June to discuss disaster planning trends and the social and technological challenges facing modern industrial societies.

Professor Masanori Izumi is known for founding the concept of seismic base isolation, which has resulted in development of the Resilient Friction Base Isolation (RFBI) system widely used for seismic protection of buildings in Japan and elsewhere in the world.

In his honor, Shimizu Corporation of Japan founded the Izumi Research Institute, which is comprised of close to two hundred doctoral researchers in the field of earthquake engineering. Izumi serves as director of the institute.



Professor Izumi and his wife met with former chair of the Civil & Environmental Engineering Department, Dr. Alypius Chatziioanou.



## Cal Poly AERO launches M.S. specialization in Space Systems

Cal Poly became the only campus in the 23-member California State University System to offer a master's degree specialization in Space Systems Engineering.

According to Aerospace Engineering Department Chair **Jordi Puig-Suari**, graduate students in this specialization will develop an understanding of all subsystems in a spacecraft or missile/launch vehicle and how they are combined to form a complete space vehicle. The program also presents the basic principles of systems engineering and their application to space vehicle design.



Jordi Puig-Suari

"We are very excited about this unique program, which will offer on-campus and distance learners a degree that further enriches their opportunities in the field of aerospace engineering," says Puig-Suari. "The specialization not only meets the needs of on-campus grad students, but it addresses the life-long learning issues of professionals already working in the field; in fact, a number of Lockheed Martin employees in Sunnyvale have already enrolled in Space Systems courses, which they can take in real time off-campus."

The specialization provides a more focused version of the M.S. Aerospace Engineering degree, with a smaller number of electives and a clear space systems and systems engineering emphasis. It is designed to accommodate students with undergraduate degrees in science or engineering disciplines other than aerospace engineering.

Lockheed Martin provided \$300,000 to help start the program.

Mechanical Engineering students Joe Walsh, left, and Adam Tanner were all smiles as they put the finishing touches on their "plankton viewing" exhibit at the Port San Luis Marine Institute in Avila Beach.



## ME students dive in to marine exhibits project

Exhibits which allow children to have hands-on learning experiences with ocean life that have been designed, built, tested and installed by Cal Poly Mechanical Engineering students are earning way better than "sea+" grades from the new Port San Luis Marine Institute in Avila Beach.

"Throughout the entire process, the students have been incredibly creative, completely professional and very dedicated to completing the project and we're very excited for the institute to open this fall," says institute operations manager Jim Burcheri. "This was an ambitious project and I think everyone has been very pleased by the results."

Funded by money from the Unocal toxic waste cleanup, ten ME students worked with professor **Lou Rosenberg** for more than nine months on three exhibits — "plankton view," "wave generation pool" and "robotic sea camera" — for the new institute, which is located near the park in downtown Avila Beach.

"This has been a tremendous opportunity for students to work on a project that will be on public display from the beginning," Rosenberg says. "It's been good for the institute and good for the

students."

ME senior **Chris Koroly** agrees: "It has been very challenging and the time commitment has been huge, but because we have been involved in the entire process, every little detail, right from the beginning, we have really taken ownership of the project."

Koroly and **Nick Dorn** developed the robotic camera exhibit, which allows children to use a computer joystick to maneuver an undersea video camera around a tank filled with sea anemones, starfish, mussels and other intertidal species.

"The thought that hundreds, hopefully thousands of kids will be driving our camera around this tank has motivated us to make it work well and make it durable," he says before adding with a laugh, "Our camera is good to 4,000 meters, and since our tank is about two meters deep that should be enough."

Koroly says the intensity and broad spectrum of skills the exhibit required helped him during recent job interviews. "Because we had our hands on every single aspect of this project, I felt like I already have real job experience. It's given me a lot of confidence. I guess that's what they mean by 'Learn by Doing.'"



The Port San Luis Marine Institute in Avila Beach was built from Unocal oil cleanup funds.

Chris Koroly (ME) inspects the circuit board for the "robotic sea camera," which allows children to drive a submersible video camera around an aquarium.



Above: Institute operations manager Jim Burcheri and ME professor Lou Rosenberg check out the progress of projects like the plankton exhibit, left.



## Cal Poly research team receives award from NASA

Cal Poly and NASA/Ames Research Center have established a rich collaboration in which students have the opportunity to address pertinent problems and to interact with NASA engineers. NASA, in turn, receives the benefit of fresh ideas and is able to assess new technologies and vehicle concepts. One such area of research is Extreme Short Take-Off and Landing (ESTOL).

This year, NASA recognized one of the Cal Poly ESTOL research teams with a Group Achievement Award.

The "C-17 Noise Mitigation Flight Research Team" led by faculty advisor **David Hall** (AERO) received the award from Dr. John A. Zuk, manager of NASA ESTOL Vehicle Systems Program office. According to Hall, the NASA awards come "few and far between."

"Our students were center stage and success rested on the quality of their work and on their ability to be productive in a demanding professional team flight test environment," Hall noted.



David Hall



## When the levees break: CE's Moss takes part in Hurricane Katrina study

**Robb Moss** is talking about hundreds of people dead, thousands homeless, and losses in the billions of dollars. Yet, after detailing the potential for catastrophe should a powerful earthquake gravely undermine California's aging and poorly designed water levees in the Sacramento Delta and east San Francisco Bay, the civil engineering professor smiles and says, "Hey, I'm not really a doomsday guy. Only optimists can work with this stuff and survive."

Moss, who earned a Ph.D. in geotechnical earthquake engineering from UC Berkeley, is literally in the disaster business. His specialties are soil liquefaction, pile design for dynamic lateral loading of soil, and "big picture risk analysis" of water levees. Much of his potential horror story for Northern California – which sounds like a script for a Hollywood disaster movie, complete with massive flooding, property damage on an epic scale, and the need for heroic action to prevent salt water intrusion into the California aqueduct – is based on his work on a National Science Foundation study of the 2005 flooding of New Orleans resulting from Hurricane Katrina. Moss, along with 37 other engineers, scientists and officials, looked at the four levee breaches that flooded 80 percent of the city, damaging more than 100,000 homes and leaving more than 1,000 people dead.

"New Orleans is a very complex place – essentially a walled fortress with most of the city below



Civil engineering professor Robb Moss is studying soil samples from the Sacramento Delta in a lab at Cal Poly.

sea level," Moss notes. "Add to that the very contentious political climate of the city, the multi-layers of bureaucracy regarding maintenance of the levees, and the potential for a large hurricane, and it's easy to see why many engineers and officials have been warning about this looming disaster for decades."

For his part of the NSF study, Moss focused on the soil near the breach of the 17th Street levee, which has been shielding New Orleans from the water of Lake Pontchartrain since the 1850s. The breach was so complex it overwhelmed his computer simulations, he says. Nevertheless, he and his group concluded in their report delivered to congress in May, that basic design flaws, rather than excessive water and wind, were responsible for flood.

"We believe – and this point is in dispute among the four studies of Katrina that have been done – that this was a structural failure because of poor maintenance and flawed design. Basically, this was not an act of God, but an act of man."

## CubeSat project starts anew after Russian missile crashes

Failure to launch hasn't crushed the future of the Cal Poly CubeSat project. In fact, five months after a Russian-made SS-18 rocket with a payload that included three Cal Poly-designed P-Pods packed with seven small satellites crashed minutes after launch in Kazakhstan, the Cal Poly team has two more scheduled attempts to blast CubeSats into orbit.

"Of course, after the thousands of hours we put into the project it was extremely disappointing when the flight had to be aborted, but we're confident the problem with the booster engine has been identified and that the next launch in Russia in December will go well," says AERO student **Roland Coelho**. "Also in December, we are working with NASA/Ames (Research Center) on a CubeSat launch in Virginia. We're definitely moving forward."

Developed by Cal Poly and Stanford University, the CubeSat project gives college students hands on experience in working on aerospace technology that Coelho says can deliver "real science" despite its small size. "The NASA/Ames CubeSat shows how useful they can be because it involves important biomedical testing that can be accomplished at a very low price," Coelho says. "CubeSats aren't just for college students to say they put something into space."



Cal Poly students toured the Baikonur Cosmodrome in Kazakhstan in late July.



Wine barrel racks are tested on Cal Poly's seismic shake table, which can simulate the duration and intensity of earthquakes like the 1994 Northridge quake.

## Cal Poly-designed wine barrel rack stands tall during shake table test

California wineries and active earthquake faults seem to go together as often as pasta and pinot noir. Unfortunately this pairing can spill thousands of gallons of wine and lead to millions of dollars in profit loss when the ground starts shaking. The 2003 San Simeon Earthquake rattled the San Luis Obispo County wine industry with significant damage and inspired a Cal Poly project to design a better barrel rack.

Civil Engineering professor **Charles Chadwell** and a group of

students developed, designed and tested a new bottom rack that helps prevent wine barrels, which are commonly stacked four, five and six high, from toppling over in an earthquake. In August, Chadwell's group tested their new bottom rack on Cal Poly's hydraulic shake table using a computer model of the 6.7 magnitude Northridge earthquake (1994). The test, which was broadcast live on KCOY-TV, went perfectly as the new rack equipped with metal ball bearings and Teflon pads allowed the barrels to glide over the concrete floor.

"The barrels toppled in every single test before we determined the bottom rack was the



Before using a new sliding bottom rack, the wine barrels tipped over during testing.

key," Chadwell says. "By allowing the bottom rack to slide, it remains upright. Doing it on live TV was a little nerve-wracking, but we've tested it so much we knew it worked."



## ME student Todd Maki is ready to take on leadership of ASI

"I've been told that by the end of my term, if I wasn't changed by this experience I wasn't working hard enough," says new Associated Students Inc. President **Todd Maki**. "So I expect to be changed a lot because I'm planning on working hard."

A mechanical engineering senior from Cupertino who was elected ASI President in a student referendum in May, Maki says he's already been changed by his initial foray into elective politics, even though the campaign went smoothly and he won the position with a whopping 74 percent of the vote.

"I've already learned so much," he says. "In high school, I didn't participate in student government at all so this campaign was a new experience

for me. I'm very familiar with the job, though, and the mission of the ASI, because I've been on the ASI board representing the College of Engineering for the past two years. I've loved Cal Poly and San Luis Obispo since the moment I first visited, and this is my chance to give back to the school and the community."

Although he's interested in a career working with robotics and mechatronics, Maki says it's people skills that will determine the success of his administration of the \$12 million a year corporation.

"This position isn't about me building a resume, but about listening to the students and community and finding solutions to the real problems that people live with everyday."



Mechanical engineering senior Todd Maki was elected Associated Students Inc. in a student referendum in May.

# ESC 2006-07



The Engineering Student Council for 2006-07 includes, from left: Nicole Stromsness (CE), Paula Ergueta (IME), Steven Cary (CPE), faculty adviser Roya Javdpour (IME) and Sheila Shideh (CE).

## Poly SBES student chapter well-represented at convention

Seventeen members of Cal Poly's student chapter of the Society of Black Engineers and Scientists met with industry professionals and collegiate members from all around the world at the group's national convention in Pittsburgh this past spring.

The theme for the convention was "Building the F.I.R.E.: Foundation to Impact, Revitalize, and Empower." Featured highlights included professional development workshops, speakers, design competitions, a graduate school fair, and a two-day career fair with more than 300 companies and government agencies in attendance. "This conference served as an opportunity for young collegiate students to gain an insight into the engineering and non-engineering professions," says Cal Poly SBES president **Thomas Abbia**. "Furthermore, this event allows students to obtain internships and full-time jobs."



Thomas Abbia



Cal Poly's SBES student chapter smiled in Pittsburgh during the spring.



# Faculty Notes

## ■ Dean's Office

**Mohammad Noori**, dean, presented a keynote lecture on "Engineering & Engineering Science: What should we teach?" at the 2006 National Science Foundation (NSF) Design, Service & Manufacturing Grantees and Research Conference in St. Louis, MO. He organized and co-organized the following symposiums: "Symposium on Recent Developments in Uncertainty Assessment and Application in Structural Health Management" at the U.S. National Congress on Theoretical and Applied Mechanics held in Boulder, CO, and "Tenure and Promotion: A Symposium for New and Prospective Faculty" at the International Mechanical Engineering Congress and Exhibition in Chicago.

Noori co-authored a technical report on "Structural Health Management and Reliability Analysis Using A Probabilistic Approach" in Sea Grant, 2005-2006 Annual Report (pp. 18-34, June 2006). He also co-authored the following presentation and journal paper: "A Bayesian Based Reliability Updating Approach with the Application of Support Vector Machine," given at the 15th U.S. National Congress on Theoretical and Applied Mechanics; "Harmonic Class Loading for Damage Identification in Beams Using Wavelet Analysis," published in the *Journal of Structural Health Monitoring* (pp. 1-16, 2006).

In addition to scholarly and research activities, Noori is the founding chair of the American Society of Mechanical Engineers (ASME) Applied Mechanics Division Committee on Uncertainty and Probabilistic, a member of the Scientific Committee of the International Conference on Structural Safety and Reliability (ICOSSAR'09), a member of the Editorial Board for the *Journal of Probabilistic Engineering Mechanics*, and a founding member of the Editorial Board of *Uncertainties in Engineering Mechanics e-Journal*.

## New assistant deans tackle accreditation, student advising, and recruitment

Neither **Fred DePiero** nor **Stacey Breitenbach** is new to the College of Engineering, but their recently-conferred titles signify expansion of their responsibilities along with the growth of CENG programs and student body.

DePiero, an award-winning teacher and member of the electrical engineering and computer engineering faculty since 1996, has been named Assistant Dean for Curricular Innovation and Assessment. He will be responsible for providing leadership in curriculum development, program assessment and especially the ABET accreditation process, which has evolved into ongoing, year-round requirements. He will also work with the Director of Project Based Learning to promote the use of innovative learning spaces and to establish strategic outreach and partnerships.

Breitenbach has served as the



Stacey Breitenbach and Fred DePiero were named assistant deans for the College of Engineering.

Executive Director of the College of Engineering Advising Center for the past 14 years. When she began in 1992, she was the sole academic advisor for the college. Today, as the Assistant Dean for Student Affairs, she oversees all the academic and administrative progress for the entire

engineering student body (numbering over 4,800), from application to graduation. Her Advising Center staff includes four full-time and one half-time advisors, plus student peer advisors. In addition, her responsibilities include oversight of the International Exchange Program.

■■■  
**Unny Menon**, interim associate dean, and **Roya Javadpour** (IME) co-authored "Logistics management approaches for time and resource constrained projects," which was presented and published in the Proceedings of the 11th International Symposium on Logistics, ILS2006, hosted by Tsinghua University in Beijing, China (ISBN 978-085358-217-8, pp 644-649).

■■■  
**Ed Sullivan**, assistant dean, attended the Transportation Research Board (TRB) meeting in San Diego, where he reported on the strategic planning work for TRB's Congestion Pricing Committee, which he chairs. He also gave an invited presentation on linkages between new technology and Congestion Pricing in the U.S. to Intelligent Transportation Systems World Congress in London. He participated as a member of a TRB proposal review panel in Washington D.C.

to select a contractor for a new project on public acceptance of road pricing innovations.

## ■ Multidisciplinary

**Sema Alptekin** (IME), **Dianne DeTurris** (AERO) and Jon Ervin of Apogee Research published "Development of an Autonomous Flying Eye" in the Proceedings of the Joint 4th European Society of Fuzzy Logic and Technology (EUSFLAT) Conference in Barcelona, Spain (pp: 227-232).

■■■  
**Kathy Chen** (MATE) and **Lynne Slivovsky** (EE) attended the National Conference on Service Learning in Engineering, Washington D.C. Their interest in this important pedagogical tool has resulted in the introduction of more service learning course focus in the curriculum

**Gregg Fiegel** (CE/ENVE) and **Al Estes** (ArchE) served mentors to a team of civil engineering faculty members from colleges and universities around the world at the ExCEED (Excellence in Civil Engineering Education) Teaching Workshop hosted at the University of Arkansas in Fayetteville. Sponsored by the American Society of Civil Engineers (ASCE), ExCEED focuses on improving teaching skills through an intense workshop format involving seminars, demonstration classes and labs. In the eight years, there have been almost 400 graduates from 197 different institutions.

■■■  
**Eric Mehiel** (AERO) and co-PI **John Clements** (CSC) received a \$76,000 grant from Cutting Edge Communications, LLC., to design a framework for modeling satellite groups in space.

■■■  
Continued on following page.



**Linda Vanasupa** (MATE) presented "Nanotechnology, Biology, Ethics and Society: Overcoming the multidisciplinary teaching challenges" at the Materials Research Society Spring 2006 Conference in San Francisco. Co-authors included **Matthew Ritter** (Biological Sciences), **Barbara Schader** (Cal Poly Library), **Peter Schwartz** (Physics), **Katherine Chen** (MATE), **Richard Savage** (MATE), **Lynne Slivovsky** (CPE, EE), **Dianne Long** (Political Science), and **Jacqueline Isaacs**.

## ■ Aerospace Engineering

**Dan Biezad** presented "GPS Autopilot without Rate Sensors for UAV Aircraft" at the American Institute of Aeronautics and Astronautics (AIAA) Annual Conference in Keystone, CO.

## ■ Civil & Environmental Engineering

**Damian Kachlakev** and **Nirupam Pal** received a \$262,000 grant from the national Plasterers Council for Phase Four of their study on the durability of plastered swimming pools.

Kachlakev presented numerous papers at conferences around the world, including the following: "Testing and Evaluation of CFRP Reinforced Beams Subjected to Elevated Temperatures" and "Testing and Modeling Out of Plane Behavior of Unreinforced Clay Masonry Walls Strengthened with GFRP Laminates" at the 8th International Symposium on Fiber Reinforced Polymer Reinforcement for Concrete Structures (FRPRCS-8) in Patras, Greece; "Compressive Strength of Pozzolan-Modified Plastering Materials: Testing, Modeling and Predictions" at the 12th International Congress on Polymers in Concrete in Chuncheon, Korea; "Behavior and Durability of CFRP Externally Reinforced RC Beams at High Temperatures" and "Testing and Modeling behavior of Unreinforced Masonry Walls Strengthened with GFRP Laminates Under Cyclic Loading", at the Third International Conference on Structural Engineering, Mechanics and Computation (SEMC 2007) in Cape Town, South Africa;

# New CENG Faculty

New faculty members from around the U.S. and the globe bring expertise to the college in areas ranging from aerospace physiology, artificial intelligence, and bioelectronics to engineering student ethics development, software engineering, and traffic engineering.

## John Bellardo

*Assistant Professor, Computer Science*

- Ph.D. U.C. San Diego (Computer Science)
- M.S. U.C. San Diego (Computer Science)
- B.S. Cal Poly (CSC '99)

■ **Research Expertise and Interests:** the design, implementation, and analysis of networks and operating systems, with a special interest in wireless networks, communication protocols, security, and operating system design

## Trevor S. Harding

*Associate Professor, Materials Engineering*

- Ph.D. University of Michigan (Materials Science and Engineering)
- M.S. University of Michigan (Materials Science and Engineering)
- B.S. University of Michigan (Materials Science and Engineering)
- B.S. University of Michigan (Aerospace Engineering)

■ **Research Expertise and Interests:** biomedical materials research, including damage accumulation models, and engineering student ethics development

## Tryg Lundquist

*Assistant Professor (Civil and Environmental Engineering)*

- Ph.D. U.C. Berkeley (Environmental Engineering)
- M.S. U.C. Berkeley (Environmental Engineering)
- B.A. U.C. Berkeley (Environmental Science)

■ **Research Expertise and Interests:** wastewater recycling; wastewater treatment using engineered ponds and wetlands; algae mass culture; biofuels; and agricultural waste issues, such as selenium-contaminated drainage, dairy waste, and San Joaquin River water quality

## David S. Janzen

*Assistant Professor (Computer Science)*

- Ph.D. University of Kansas (pending in Computer Science)
- M.S. University of Kansas (Computer Science)
- B.A. Tabor College (Mathematics and Computer Science)

■ **Research Expertise and Interests:** agile methods, artificial intelligence, test-driven development, object-oriented design and analysis, empirical software engineering, computer science pedagogy



John Bellardo  
(CSC)



Trevor Harding  
(MATE)



Tryg Lundquist  
(CE/ENVE)



David Janzen  
(CSC)



Robert McDonald  
(AERO)



Sudeshna Mitra  
(CE/ENVE)



Brian Self  
(ME)



Robert Szlavik  
(BMED/GENE)

## Robert A. McDonald

*Assistant Professor (Aerospace Engineering)*

- Ph.D. Georgia Institute of Technology (Aerospace Engineering,)
- M.S. Georgia Institute of Technology (Aerospace Engineering,)
- B.S. University of Missouri-Rolla (Aerospace Engineering)
- **Research Expertise and Interests:** advanced design methods and computing architectures, aerospace design analysis tools, open community development models, aircraft design and performance

## Sudeshna Mitra

*Assistant Professor (Civil and Environmental Engineering)*

- Ph.D. Arizona State University, Tempe (Civil Engineering)
- M. S. University of Arizona (Civil Engineering)
- M. Engg. National University of Singapore (Civil Engineering)
- B.E. Bengal Engineering & Science University (Civil Engineering)
- **Research Expertise and Interests:** traffic and transportation safety and security, pedestrian and elderly safety, statistical modeling, GIS applications in transportation, traffic engineering, travel demand modeling, and transportation planning

## Brian Self

*Associate Professor (Mechanical Engineering)*

- Ph.D. University of Utah (Bioengineering)
- M.S. Virginia Polytechnic Institute and State University (Engineering Mechanics)
- B.S. Virginia Polytechnic Institute and State University (Engineering Science and Mechanics)
- **Research Expertise and Interests:** aerospace physiology, sports and orthopedic biomechanics, pedagogical research

## Dr. Robert B. Szlavik

*Assistant Professor (Biomedical and General Engineering)*

- Ph.D. McMaster University (Electrical and Computer Engineering)
- M.Eng. McMaster University (Electrical and Computer Engineering)
- B.Eng. McMaster University (Electrical and Computer Engineering)
- **Research Expertise and Interests:** bioelectronics, neurons, and modeling electrophysiological phenomena.



"Modeling Out of Plane Behavior of Unreinforced Clay Masonry Walls Strengthened with GFRP Composites" at the Tenth North American Masonry Conference (10 NAMC) in St. Louis, MO; "Testing, Evaluation and Modeling of Fire Resistance of RC Beams Externally Retrofitted with CFRP Laminates" and "Material Degradation Effects on Flexural Capacity of Concrete Beams Reinforced with FRP Bars" at the Third International Conference on Durability and Field Applications of FRP Composites for Construction (CDCC) in Quebec, Canada; and "High Temperature Durability of CFRP Laminated RC Beams" at Composites '06 in St. Louis, MO.

Kachlakev and Pal made a Final Report on "Durability of Plastered Swimming Pool: Effects of Plaster Compressive Strength, Porosity, Pozzolan and Quartz Sand modifications, and Surface Sealants on Surface Deterioration and Long-Term Effects of Start-up Procedures, Sanitizers and Water Chemistry on Durability of Plastered Swimming Pool Surfaces" to the National Plasterers Council in Port Charlotte, FL.



**Yarrow Nelson** gave three presentations at the 2006 Battelle Conference on Remediation of Chlorinated and Recalcitrant Compounds in Monterey. Seven Cal Poly students attended the conference with him. The papers included the following: "Biotreatment of Synthetic Drill cutting waste" co-authored with CEEN graduate student Laleh **Rastegarzadeh** and G. Todd Ririe of Unocal; "Biodegradation of Hydrocarbons Assisted by Arroyo Willows in Controlled Mesocosms conducted at the former Guadalupe Oil Field" co-authored with master's student **Kevin Crossley**; and "Biodegradation and Toxicity of Hydrocarbons Along Vertical Transects in a Groundwater Plume" with **Andrew Lassen** (a Cal Poly M.S. student in Biochemical Engineering) Professor **Christopher Kitts** (Microbiol-

**New CSC Chair**  
**Ignatios Vakalis** likes to wear bright, colorful shirts because it sets a light tone for the department. "I want students to realize computer people like to have a little fun, too," he says.



## CSC welcomes Vakalis as new chair

Ignatios Vakalis foresees that the future direction of many fields depends on the creative use of computing. "Interdisciplinary training coupled with in-depth project-based learning will produce the uniquely qualified computer scientists industry needs," says the new chair of the Computer Science Department.

With that in mind, Vakalis believes that CSC "must enhance the strengths of the department and also focus on collaboration with departments within the college and across campus. "We have started working on curriculum innovations and are taking concrete steps to enhance the gender diversity among our student population. Strengthening our relationships to industry and alumni remains a top priority."

His passion for undergraduate education has led Vakalis to the development of model curricula in Computational Science and Engineering (CS&E) with multiple funding from NSF and the W.M. Keck Foundation. He served as fellow of the Ohio Supercomputer Center, and worked with the Ohio Board of Regents coordinating efforts on computational science education for high schools, community colleges and undergraduate institutions. In 2005, Vakalis was named "Computational Science Educator of the Year" by the Krell Institute and the Department of Energy. He received his Ph.D. from Western Michigan University.

## Biezdad honored for distinguished scholarship

When he's not building an airplane with students in his AERO 572 course, **Dan Biezdad** can be found working with graduate students on research projects sponsored by NASA-Ames to develop a comprehensive system identification of unmanned aerial vehicles.

His work has earned the aerospace engineering professor Cal Poly's Distinguished Scholarship Award.

Biezdad has published over 80 papers and a textbook in the field of integrated navigation systems. Grants from both industry and government have furthered his research and supported over 30 graduate students during the past 14 years. Noting that Biezdad is also an award-winning teacher, Cal Poly President **Warren Baker** said, "Dr. Biezdad's record of supervising senior projects and publishing articles on undergraduate education shows his commitment to applying scholarship to the educational mission of Cal Poly."

Biezdad earned his bachelor's degree from the Illinois Institute of Technology, an M.S. from the Air Force Institute of Technology, and a Ph.D. from Purdue University.



**Dan Biezdad**

ogy), and research scientists Paul Lundegard and Gonzalo Garcia of Unocal.

Nelson has had three new research proposals funded by Chevron: "Investigation of Wetland-Enhanced Hydrocarbon Natural Attenuation at the Guadalupe Restoration Project," "Hydrocarbon Biodegradation Kinetics with Anaerobic Electron Acceptors in Laboratory Microcosms," and "Phytoremediation of Hy-

drocarbons Using an On-site Container Study."



**Ashraf Rahim** and **Saad Merayyan** co-authored "Subgrade Characterization using DCP: An Overview of Research," which was published in the Proceedings of the 2006 Civil Engineering Infrastructure Systems Conference held in Beirut,

Continued on following page.





Gregg Fiegel was named chair of the Civil and Environmental Engineering Department

## New Civil & Environmental chair will put focus on students

"Students are the reason the faculty and staff are here. Therefore, my first priorities will include student advising and improved experiences for incoming freshmen. We need to set our students up for success as they begin their engineering careers," states **Gregg Fiegel**, recently appointed chair of the Civil and Environmental Engineering Department.

A 1990 civil engineering alumnus, Fiegel has taught at Cal Poly since 1995. He earned his Ph.D. from U.C. Davis in Geotechnical Engineering and attained a Professional Engineer (PE) license and a Geotechnical Engineer (GE) title, both in the State of California. He is active with the American Society of Civil Engineers (ASCE), serving at the national level on committees related to student activities, mentoring, and faculty development.

"Serving our students also creates opportunities for our faculty," he notes. "A well-educated and enthusiastic student is a tremendous resource for a faculty member tackling a research project or solving a problem. This is important because the students and the faculty will be responsible for dealing with the engineering challenges facing our society. We need both at the top of their game."

Lebanon. Rahim was invited to serve as a member on a committee of the Transportation Research Board on Physico-chemical and Biological Processes in Soils for a three-year appointment.

### Computer Engineering

**Joe Grimes** presented the following: "Team-Based Learning: Using Student Teams to Enhance Learning and Bet-

ter Prepare Students for their Future in Graphic Arts," at the International Graphic Arts Education Association Conference hosted at Cal Poly; "Using Student Teams to Enhance Learning and Better Prepare Students for Their Future" and "eLearning: Using Really Simple Synchronization (RSS) Feeds" at the 9th CSU Regional Symposium on University Teaching held at CSU Dominguez Hills; and "Faculty Centers & Technology: Balance, Strategy, Tools (email, LMS, ePortfolio, etc),

ADA Compliance" presented to the CSU Faculty Development Council.

■ ■ ■  
**Al Liddicoat**, program director, co-authored a paper on "Evaluation of the Telecommunications Protocol Processing Subsystem Using Reconfigurable Interoperable Gate Arrays published in the Proceedings of the IEEE International Symposium on Low-Power and High-Speed Chips, COOL Chips IX, held in Yokohama, Japan. He also co-authored "FPGA-Based Artificial Neural Network Using CORDIC Modules" for the 51th Annual Conference of the International Society for Optical Engineering held in San Diego.

### Computer Science & Software Engineering

**Ignatios Vakalis**, department chair, co-authored a national report on "Undergraduate Computational Science and Engineering Education" sponsored by the Society of Industrial and Applied Mathematics. He has organized and chaired three international conferences on the "Teaching of Mathematics," the most recent of which was held July 2006 in Istanbul, Turkey. The conference was sponsored by international corporations, including IBM and Canon, universities around the world, the Mathematical Association of America, the Turkish Mathematical Society, and the Scientific & Technological Research Council of Turkey.

■ ■ ■  
**John Clements** is co-PI on a recently-awarded, multi-institution \$500,000 NSF grant for a project titled, "Redesigning the Introductory Curriculum: the Design Discipline." Clements served as session chair on the Program Committee for the Scheme Workshop, co-located with the

International Conference on Functional Programming (ICFP) held in Portland, OR. Clements is also one of the PI's on a private grant with Dr. **Eric Mehiel** (AERO) to design a framework for modeling satellite groups in space.

■ ■ ■  
**Diana Franklin** contributed a chapter on "Case Studies in Cost, Performance, and Reliability" to *Computer Architecture - A Quantitative Approach*, 4th edition (Hennessy and Patterson, eds., Elsevier Publishers, Fall 2006), the world's best-selling graduate computer architecture textbook. With student **Derek Lockhart** and other co-authors, Franklin wrote "Characterization of Error-Tolerant Applications when Protecting Control Data," which Lockhart presented at the 2006 IEEE International Symposium on Workload Characterization in San Jose. Franklin also co-authored "Tile Size Selection for Low-Power Tile-Based Architectures" with students **Jennifer Mankin** and **Michael Brown** and other co-authors. The students presented the paper at the ACM International Conference on Computing Frontiers in Ischia, Italy.

Under a \$45,000 National Science Foundation Major Research Infrastructure Grant, Franklin has undertaken a three-year project on "Acquisition of Computing Resources for Management of Reliability through Data Classification and Voltage Overscaling."

■ ■ ■  
**Hasmik Gharibyan** presented a talk on "Oral exam as a better assessment tool for certain theoretical and mathematical subjects" at the 9th CSU Regional Symposium on University Teaching in Dominguez Hills. The abstract of the presentation was published in symposium's Program and Abstracts (p. 24). She also co-authored a paper titled "Gender gap in Computer Science does not exist in

## ME's Coolidge receives outstanding staff award

**Larry Coolidge**, information technology consultant in the Mechanical Engineering Department was recognized at the all-university General Session of the Fall Conference as the recipient of the 2005-2006 Outstanding Staff Award. A member of ME for just over six years, Coolidge was chosen for his optimism and unflappable, professional calm under fire.



Larry Coolidge



## Nelson receives this year's highest teaching award

Associate Professor **Yarrow Nelson** of the Civil and Environmental Engineering Department is known as more than an excellent teacher and remarkable researcher. "Dr. Nelson's positive attitude toward life and people makes him a great example," says one of his students.

Named as one of Cal Poly's three Distinguished Teachers for 2005-06, Nelson earned his Ph.D. at Cornell University. He joined Cal Poly in 1999 and teaches graduate courses in environmental engineering and biochemical engineering. His research includes hydrocarbon biodegradation and phytoremediation, toxic metal bioaccumulation in shellfish and biofilm modeling. Nelson has been awarded multiple grants from Chevron/Unocal for his research on bioremediation of the contaminated Gaudelupe Dunes oil field.



Yarrow Nelson

one former Soviet republic: results of a study," which she presented at the 11th ACM SIGCSE conference on Innovation and Technology in Computer Science Education (ITiCSE06) in Bologna, Italy. The paper was published in the conference proceedings (pp.222-226).

**Aaron Keen** co-authored "Toward a Definition of and Linguistic Support for Partial Quiescence," which was published at EuroPar 2006 in Dresden, Germany.

**John Seng** published a paper titled, "PolyBot Board: a Controller Board for Robotics Applications and Education" at the 2006 International Conference on Frontiers in Education: Computer Science and Computer Engineering held in Las Vegas.

### Electrical Engineering

**Fred DePiero** co-authored "Structural Matching Via Optimal Basis Graphs," which he presented at the 18th International Conference on Pattern Recognition held in Hong Kong.

**Xiao-Hua (Helen) Yu** presented "Rotorcraft acoustic noise estimation and outlier detection" co-authored with EE graduate student **J. Fu** at the IEEE World Congress on Computational Intelligence (International Joint Conference on Neural Networks) held Vancouver, Canada. She also co-chaired a session and presented a paper on "A neural network controller for a class of phase-

shifted full-bridge DC-DC converter" co-authored with **Taufik** and EE graduate student **W. Li** at the 2006 International Conference on Artificial Intelligence in Beijing, China. Both papers were published in the conference proceedings.

**Jane Zhang** and co-author **Hirofumi Takahashi** (EE '05) presented "Screen Data Compression for Improved VNC," which was selected as the best paper at the session on Emergent Computing at the 10th World Multi-Conference on Systemics, Cybernetics and Informatics held in Orlando.

### Industrial & Manufacturing Engineering

**Jianbiao Pan** gave two papers at international conferences: "Estimation of Liquidus Temperature when SnAgCu BGA/CSP Components are Soldered with SnPb Paste," published in the Proceeding of the IEEE 7th International Conference on Electronics Packaging Technology in Shanghai; and "A Comparative Study of Various Loss Functions in the Economic Tolerance Design," published in the Proceedings of 2006 IEEE International Conference on Management of Innovation and Technology in Singapore.

**Dan Waldorf**, with co-authors Sema Alptekin and GM employee Robert Bjurman, published "Plotting a Bright Future for Manufacturing Education: Results

of a Brainstorming Session in the 2006 ASEE Annual Conference Proceedings. The paper received the ASEE Manufacturing Division 2006 Best Paper Award. Waldorf was also selected by the Society of Manufacturing Engineers and the Italian Trade Commission (ITC) in Chicago to participate in the Italian Machine Tool Technology Awards Visits Program to Italian Machine Tool Companies. ITC and UCIMU (Italian machine tool institute) sponsored the trip to visit seven machine tool companies in northern Italy.

**Jose Macedo, Kurt Colvin** and **Dan Waldorf** published "Machine Vision Course for Manufacturing Engineering Undergraduate Students" in the Society of Manufacturing Engineers (SME) *Journal of Manufacturing Systems* (Vol. 24, No.3, pp. 256-255).

The Institute of Industrial Engineers (IIE) invited Macedo to present a two-day seminar on "Work Measurement" to Boeing engineers, and he also served as an instructor for the MIT Lean Aerospace Initiative (LAI) "Lean Academy" in El Segundo.

### Materials Engineering

**Kathy Chen**, chair, presented "Infusing the Materials Engineering Curriculum with Sustainability Principles" at the American Society for Engineering Education (ASEE) conference in Chicago, IL. The paper was co-authored by **Linda Vanasupa, Blair London** and **Richard Savage**. Chen also served as a session moderator at the conference and presented "Laying the Foundation for Nanoscience and Nanotechnology with an Introductory

Module for High School Students," which she co-authored with colleagues from Northwestern University.

At the Shape Memory and Superelastic Technologies Conference in Pacific Grove, Chen gave a paper and poster presentation based on a project funded by Nitinol Devices & Components on "Effects of Hydrogen on the Phases and Transition Temperatures of NiTi." One of Chen's co-authors was Amanda Runciman (M.S. MATE '06).

Chen continued her collaboration with the National Center for Learning and Teaching (NCLT) in Nanoscale Science and Engineering at Northwestern University to develop education materials on nano concepts at the K-12 level. She helped facilitate the 2nd Annual NCLT Faculty Workshop on "Nanoconcepts in Higher Education" hosted by the Materials Engineering Department and held at Cal Poly.

**Blair London** gave an invited presentation at European Materials Research Society (E-MRS) Spring Meeting in Nice, France, on "Materials Selection for the Life Cycle - A New Course heralding the Future of Materials Engineering" co-authored with **Katherine Chen** and **Linda Vanasupa**. London also discussed this topic and innovations in the Cal Poly MATE curriculum at seminars hosted by Carnegie Mellon University, Northeastern College, Smith College, and Olin College.

**Richard Savage**, advisor for the Micro Systems Technology Group (MST), signed a significant Research Partnership with Olympus Microsystems America. Based on the work done by graduate student **Brent Huigens** at the company's R&D

Continued on following page.

## EE's Taufik named outstanding advisor

Saying he "exemplifies all of the best qualities of a good academic advisor," Cal Poly's Academic Advising Council named electrical engineering assistant professor **Taufik** the 2005-06 Outstanding Faculty Advisor Award winner. A student who nominated Taufik commented, "Dr. Taufik is great helping us students make important life decisions, such as choosing a career path that he knows we will enjoy and make us happy."



Taufik



facility in Atlanta, GA, Olympus is sending a unique research testing fixture for its new optical switching module back to the Cal Poly MST lab for continued studies. The agreement will support several graduate and undergrad students working on the project.

Savage presented "Assembly and Characterization of Surface Mount Components on Silicon Substrate" (co-authored with IME assistant professor **Jianbiao Pan** and MATE graduate student **Brian Wright**) to the 39th International Symposium on Microelectronics in San Diego.

He also presented "Integrating Project Based Learning throughout the Undergraduate Curriculum" to the ASEE-PSW Conference 2006 – Engineering for the Future: What is needed Now held at Cal Poly, Pomona. Savage published "The Role of Design in Materials Science and Engineering" in the *International Journal of Engineering Education* (Vol.22, No.5, 2006).

## Mechanical Engineering

**Glen Thorncroft** and **Scott Patton** published "Modeling of Pipe Flows and Observation of Laminar-Turbulent Transition in Smooth Pipes" at the ASEE Annual Congress and Exposition in Chicago. It received the Best Paper Award for the Division of Experimentation and Laboratory Oriented Studies (DELOS). At

the American Society of Mechanical Engineers (ASME) International Mechanical Engineering Congress and Exposition held in Orlando, FL, Thorncroft received the first-ever award for Outstanding Reviewer from the Division of Heat Transfer. He also served as a session chair at the 9th AIAA/ASME Joint Thermophysics and Heat Transfer Conference held in San Francisco.

**James Widmann** co-authored a paper with **Kim Shollenberger** on "Student use of Textbook Solution Manuals: Student and Faculty Perspectives in a Large Mechanical Engineering Department," which he presented at the 2006 ASEE conference in Chicago. The Bavaria California Technology Center awarded Widmann a "Global Multidisciplinary Design Research and Education" grant for travel to Germany to establish a joint design curriculum with the Munich University of Applied Science (FHM). Professor Christoph Mauer of FHM is the co-Principal Investigator. With German Professors Peter Wolfsteiner and Bo Yuan, Widmann co-taught a summer course in "Automotive Mechatronics" at the University of Applied Sciences in Munich.

**Charles Birdsong** and **Peter Schuster**, along with students **John Carlin**, **Daniel Kawano**, and **William Thompson** co-authored "Test Methods and Results for Sensors in a Pre-Crash Detection System" published in *SP-2027: Intelligent Vehicles*

## ME professor contributes to SLO Children's Museum

Cal Poly mechanical engineering professor **Louis Rosenberg** has pledged \$60,000 to the San Luis Obispo Children's Museum. Rosenberg, the founder of two companies — Microscribe and Immersion — which developed technologies used in animated films and video games, has designated the funds toward a trolley replica in the new museum's "Merchantville" interactive exhibit.

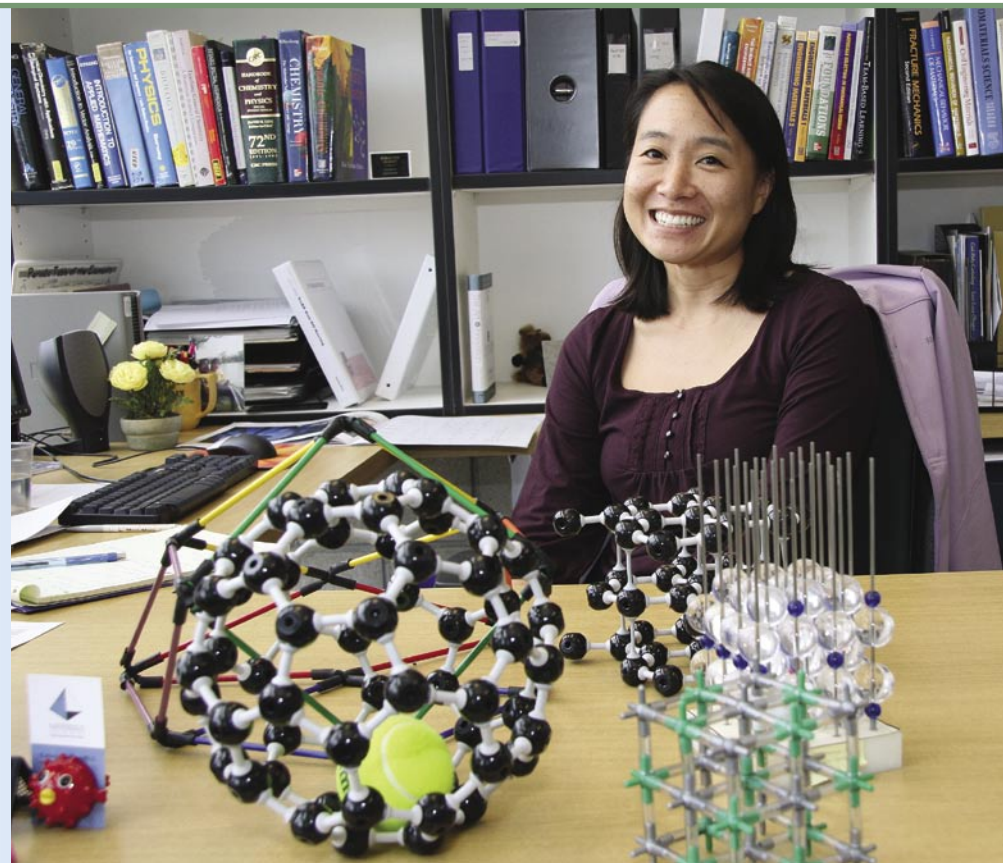
"My interest in technology to support learning is a great match for the Children's Museum," Rosenberg says. "I believe we have planned a stunning museum that will be filled with innovation."

The museum's new building is scheduled to open in December 2006 with more than 20 indoor and outdoor environments designed to "provoke curiosity and imagination and provide opportunities to explore, investigate and create in the arts, sciences and humanities."

For information on the museum, check out [www.slokids.org](http://www.slokids.org)



Louis Rosenberg



Kathy Chen is the new chair of the Mechanical Engineering Department.

## Chen assumes the chair at MATE

When **Kathy Chen** joined the Materials Engineering Department in 1999, she was already a well-published expert in structure-property relationships in materials, intermetallics, alloy design and development, and phase transitions. But while the new MATE chair has earned her credentials as a researcher at a research university, national laboratory, and in industry, she has found that her work as an educator has been "the most rewarding."

Chen earned undergraduate degrees from Michigan State University and her Ph.D. from M.I.T. She taught at New Mexico Tech and also served in the Material Science and Technology Division at the Los Alamos National Laboratory. Over the last several years, she has collaborated with the NSF National Center for Learning and Teaching (NCLT) in Nanoscale Science and Engineering at Northwestern University to develop science modules and nanoscience activities for K-12 students.

As MATE chair, Chen aims "to promote a good learning experience for the students and to support the faculty." She notes, "We are ushering in our new, projects-based MATE curriculum to equip our students to tackle the technical challenges in our ever-increasing complex and global world."

& Transportation Systems, Society of Automotive Engineers (SAE), April 2006.

**Peter Schuster** and **Charles Birdsong** co-authored "Research in the Undergraduate Environment," published in *Proceedings, 2006 American Society for Engineering Education (ASEE) Annual Conference*. Schuster chaired the mechanical engineering education session at the ASEE meeting.

Schuster, **Andrew Davol**, and **Joe**

**Mello** published "Student competitions - the benefits and challenges" in the same ASEE conference *Proceedings*.

Schuster also co-authored "An Investigation on the Importance of Material Anisotropy in FE Modeling of the Human Femur" published in *SP-1995: Biomechanics 2006*, SAE, April 2006.

Schuster published "Current Trends in Bumper Design for Pedestrian Impact" published in *Proceedings, 2006 SAE World Congress* (April 2006).



# Alumni updates

*The Engineering Advantage prints alumni updates as space permits. Notes not included will appear in a future issue.*

**Steve Witten** (CSC '74, MEngr IE '76) retired from Hewlett-Packard after 27 years of service as a software development engineer in new product development. He worked on diverse projects, including factory data collection, energy management, user-interface design tools, network monitoring/management instruments, pharmaceutical data management, distributed object systems, internet imaging, internet security, and internet quality-of-service. Steve recently started a new career as a consultant and a contract engineer. His first assignment is working on a system to monitor the health of the systems that serve Yahoo! "Help!" he says.

## Distinguished grads honored by Cal Poly College of Engineering

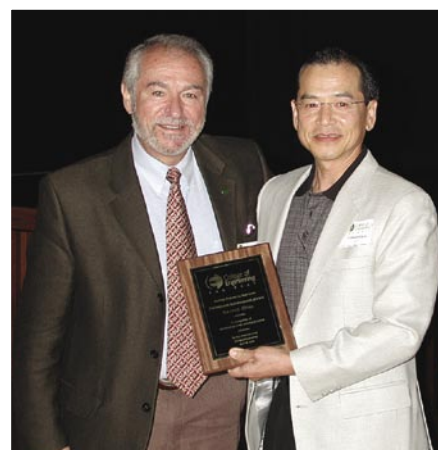
Hollywood magic was well represented at the Alumni Recognition Luncheon hosted by the College of Engineering as part of Cal Poly's Open House in April.

Honorees included San Francisco's **Michael Sanders**, a 1996 mechanical engineering graduate and Digital Supervisor for Industrial Light and Magic, and **Jim Berney** from Culver City, a 1994 computer science alumnus, who serves as the Computer Graphics supervisor for Sony Picture Imageworks. The two have captured Academy Award nominations and Oscars for films such as "Titanic," "Star Wars II," the Harry Potter movies, "The Chronicles of Narnia," The Matrix Reloaded," "Lord of the Rings: The Two Towers, and "Stuart Little," to name a few.

Sanders received the Outstanding Recent Alumnus or Alumna Award along with three other "up-and-coming" graduates: 1997 environmental engineering alumna **Judy Ledford** from San Luis Obispo, CA, 1994 B.S. and 1996 M.S. computer science graduate **Stephanie Ludi** from West Henrietta, NY, 1998 industrial engineering alum **Olivia Shen Green** from Fremont, CA.

The award honors graduates who have contributed significantly to their fields within 10 years of graduation.

The College of Engineering also bestowed its Professional Achievement Award on five graduates of 10 years or more who have attained a high level of distinction in their fields. In addition to Berney, honorees included: 1983 civil engineering graduate **Eric Nielsen** from Orange, CA; 1973 electrical engineering alumnus **Carson Chen** from Foster City, CA; 1978 industrial engineering alumna **Susan Mooney Johnson** from Huntsville, UT, 1985 mechanical engineering graduate **Robert Addis** from Danville, CA.



Electrical Engineering chair Michael Cirovic congratulates 1973 electrical engineering graduate Carson Chen, who helped found Innovation Quest, a non-profit, philanthropic corporation that supports Cal Poly faculty projects, senior projects or master's thesis projects.



Alumni Award winners posed with faculty and new CENG dean Mohammad Noori, right, at a luncheon at Open House.

## IE grad receives honor from Cal Poly Alumni Association

**Susan Mooney Johnson** (IE '78) was among eight Cal Poly alumni recognized during Homecoming 2006 at the annual Honored Alumni Awards & Grand Reunion Banquet.

The Honored Alumni Award, established more than 30 years ago, is the highest honor bestowed upon university alumni by the Cal Poly Alumni Association. Each year, Cal Poly honors seven individuals, one from each of the university's academic colleges plus an additional graduate for the Distinguished Service Award.

Johnson is president of Futura Industries in Clearfield, Utah, shaping the company to become one of the leaders in the aluminum extrusion industry. After receiving her Cal Poly degree, Johnson attended graduate school at UC Irvine and Santa Clara University. Prior to joining Futura, she served as president and chief operating officer of Daw Technologies Inc., and president of Savage Manufacturing Corporation, a subsidiary of Mack Trucks Inc. She and her husband, Chris, live in Huntsville, Utah.



Susan Mooney Johnson



Mechanical engineering chair Thomas Mackin, left, congratulates Michael Sanders (ME '96), the Digital Supervisor for Industrial Light and Magic where he has worked on 37 films and 16 music videos and commercials.





Paulo Younse (ME '02) tests a Cliffbot rover in the harsh environment of the Arctic Circle.

## ME alum tests “bots” for NASA

**Paulo Younse** hopes to put robots on the moon or Mars—and last summer, he discovered that the Arctic Circle is the perfect place to test them.

The 2002 mechanical engineering graduate now attends graduate school at the University of Florida. In August, Younse served as the mechanical leader in a team from the NASA Jet Propulsion Laboratory. Their mission: testing a Cliffbot rover in Svalbard, an archipelago in the Arctic Circle about 600 miles from the North Pole.

“This was the first time we actually took it up to a really challenging environment with rocky cliff faces and extreme temperatures,” said Younse, whose interest in robotics was sparked by an internship with NASA’s education program. “You’ve got to have a wide variety of knowledge to make something that intelligent,” he said about constructing robots. “I knew I wanted to do something like that to be able to explore space and planets in the future.”

The Cliffbot rover has the capacity to investigate how life exists in harsh environments, to record the mineralogy of rocks, and to test instruments with the potential to search for life on Mars. Younse designed the Cliffbot’s body, integrated robotic arm and scoop for carrying samples and is currently working on a more efficient hopping robot to be used for moon exploration.

## 1980s

**Ernie Schenone, Jr.** (ME '89) is the owner and president of Chocoholics Divine Desserts, located in Clements, CA. You can find more information and details about his products at [www.gourmetchocolate.com](http://www.gourmetchocolate.com).

## 1990s

**Ben August** (MATE '99) works in the IT Group in the Office of the Vice Provost

of Undergraduate Education at Stanford University.

**Chang Ling Hu** (CSC '97) is working as an office associate for a private company.

**Jeffrey Hudgins** (ME '92) serves as Corporate Engineer for Six Flags Theme Parks, with responsibility for the development and technical coordination of new rides as well as the management of sustaining engineering efforts for two theme parks in California and Mexico.

**Ellis Ishaya** (CE '93) was recently promoted to vice president of professional services for EVault, a leader in online data protection solutions located in Em-

eryville, CA. Ellis will focus on expanding EVault’s consulting offerings and guiding businesses in the areas of backup implementations, training, business continuity planning and disaster recovery testing. Prior to joining EVault, he gained 14 years of experience leading professional services groups at ePeople, Primus and Imparto Software Corporation. He also spent several years at PricewaterhouseCoopers, where he managed the West, Pacific Northwest and Rocky Mountain regions for its IAS consulting group.

**Sarah McQuaide** (ME '99) graduated in 2002 from the University of Washington with a master’s in mechanical engineering. She currently works in the U.W. Genomation Lab on a project funded by the National Institutes of Health involving microscale devices for single-cell studies. NIH also funds the project collaborators at the Seattle Fred Hutchison Cancer Institute. Sarah writes, “I am happily enjoying Seattle’s beautiful green weather and designing clocks in my spare time.”

**Carlos Rios** (EE '97) has worked for

Nokia’s internet security appliance group for the past two years.

**Kip Sigman** (EE '98) lives in Santa Barbara, where he works as a software engineering consultant, specializing in Internet applications. He is also a part owner of an Internet marketing start-up.

**Melanie (Look) Wollenweber** (CE '95) works as the Civil Engineer to manage the infrastructure upgrades for Fort Baker in the Golden Gate National Recreation Area, as it is converted from an old Army base to a retreat and conference center.

## 2000s

**Joseph Camajani** (CE '05) sends greetings to fellow alumni and writes that he has been enjoying his position as a structural design engineer at KPFF Consulting Engineers in San Francisco. He is currently working on the design of mild-reinforced, prestressed, and post-tensioned precast and cast-in-place

## Cooper to lead Quality of Life research center

**Dr. Rory Cooper** (EE '85, M.S. EE '86), Chair and Distinguished Professor at the School of Health & Rehabilitation Sciences at the University of Pittsburgh, has been named co-director of the Quality of Life Technology Engineering Research Center.

Founded by a \$15 million grant from the National Science Foundation, the center will develop ergonomic technologies and sophisticated robotics systems to help older adults and people with disabilities live independently and productively. Cooper, an internationally-known expert in wheelchair design, will team with Takeo Kanade, an internationally recognized expert in computer vision and robotics from Carnegie Mellon University, to lead the center.



Rory Cooper (EE '85, M.S. EE '86) has been named chair of the Quality of Life Technology Engineering Research Center.





1940 CENG alum Dale Nix, left, was a leader of Cal Poly's Rally Club. He's sixth from the left (standing) in the club photograph above.



## Spirited EE alum's gift to energise future generations of engineers

When **Dale Nix** arrived on campus from the San Joaquin Valley around 1937, Cal Poly was not yet a university. Mr. Nix remembers the "California Polytechnic School" as having about 800 students. The 30 or so young men in "electrical industries," his field of study, could take a junior college division curriculum in electricity, or three other programs designed to give students training to advance beyond the level of "journeyman."

"I didn't have the money to go to a four-year college—at Cal Poly I paid \$30 a month and worked for \$4 a week," recalls Mr. Nix.

Back then, Cal Poly's facilities were extremely limited, but Mr. Nix enhanced his education through "Poly Phase," an electrical engineering club (and the oldest club on campus) that organized field trips to companies, among other activities. The 1940 "El Rodeo" yearbook also reveals Nix as a spirited member of the Rally Club.

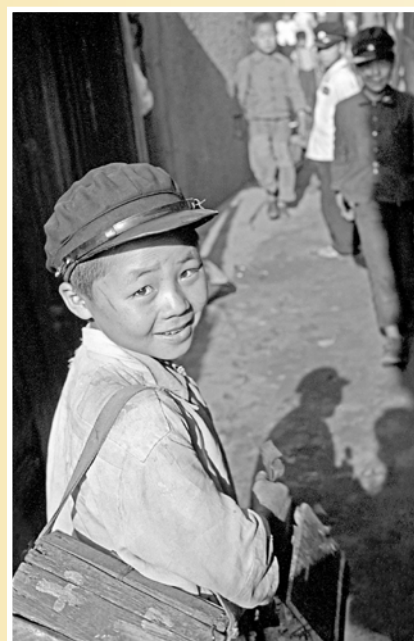
The certificate Nix earned at Cal Poly enabled him to take a job with PG&E, where he worked for 43 years. "I most enjoyed being a 'problem-solver' in new plants," he says.

Thanks to Dale Nix, future students will not only have the advantage of first-rate facilities and equipment, but they will have more opportunity for scholarships to help with the cost of their education. Mr. Nix recently made a gift of \$500,000 to the College of Engineering, which, according to Dean **Mohammad Noori**, will be used to establish scholarships for freshmen and honors students, and to help equip new labs in the Bonderson Projects Center.

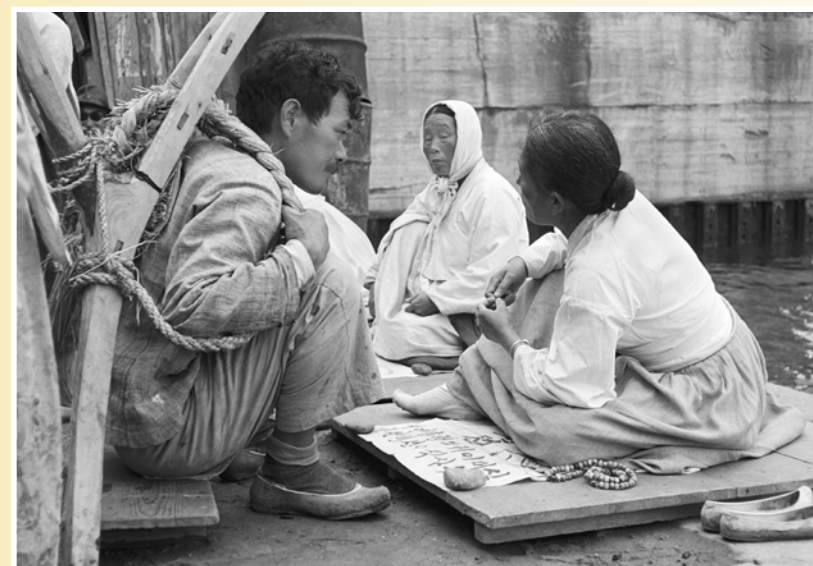
"We are deeply grateful to Mr. Nix," states Noori. "His legacy will include scores of young engineers who, armed with a Cal Poly engineering degree, and much like Mr. Nix himself, will become the backbone of industries in California and throughout the world."

*"His legacy will include scores of young engineers who, armed with a Cal Poly engineering degree, and much like Mr. Nix himself, will become the backbone of industries in California and throughout the world."*

Mohammad Noori, Dean



A U.S. Army photographer stationed in Pusan, Korea in 1952, Cal Poly graduate Roger Marshutz took thousands of photographs of daily life in the war-torn city. Some of his historical shots like these were recently on display at Harvard's Peabody Museum of Archaeology and Ethnology.



## Marshutz' photos find home at Harvard

When **Roger Marshutz** (Air Conditioning '52) discovered photography, his plans to enter the family business took a detour. He left Cal Poly to pursue his passion but was drafted and sent to Pusan, Korea. It was 1952. With Seoul under Communist occupation, Pusan was the temporary capital and home to hundreds of thousands of refugees along with thousands of American soldiers.

A photographer for the Army, Marshutz documented this time of transition and disruption, eventually collecting 3,000 black-and-white images and 120 color slides. Fifty years later, he donated his striking and historic collection to Harvard's Peabody Museum of Archaeology and Ethnology. The museum recently hosted a public showing of the Cal Poly alum's work.

concrete structures, as well as some other smaller timber and masonry projects. "I miss San Luis Obispo, but working and living in my hometown of San Francisco is fantastic," he says, adding that he hopes to see other Cal Poly grads soon!

**Michael McDonald** (AERO '00) is a graduate of the United States Naval Test Pilot School and is currently working as a civilian aerospace flight test engineer on the program to replace the aging VH-3D Presidential Helicopter with a new modern helicopter (VH-71A).

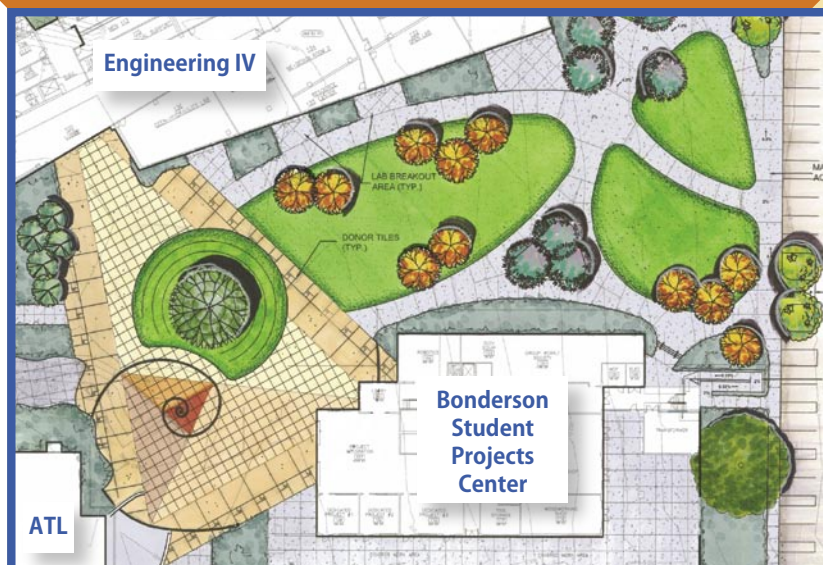
**Bjorn Monteen** (ME '00) works as a Senior Mechanical Engineer at Electrogilas

Designs, where he designs and engineers manufacturing test equipment for the semiconductor industry.

**Joe Ryan** (CSC '02, M.S. CSC '04) entered Stanford Graduate School of Business this fall and is looking toward a career in Venture Capital.

**Joel Vazquez** (ME '01) has been with Parsons for seven years as a consultant in acoustics (noise & vibration) for the transportation and industrial sector, giving him the opportunity to travel the country. He is currently attending Loyola Marymount University pursuing a master's degree in Structural Dynamics.





## Go live to see progress of Engineering Plaza

With the Bonderson Projects Center virtually done and the three-story, 104,000-square-foot Engineering IV aiming for completion in February 2007, work has commenced on the Engineering Plaza, which connects the new facilities.

You can watch the day-to-day progress live on Web cam. Go to [http://www.facilities.calpoly.edu/campusprojects/EngIV\\_Web\\_Cam.htm](http://www.facilities.calpoly.edu/campusprojects/EngIV_Web_Cam.htm).

All Engineering Plaza members can expect a project update heading your way soon to confirm your inscription. For more information contact **Michelle Jenkins** at (805) 756-5374 or [mjenkins@calpoly.edu](mailto:mjenkins@calpoly.edu).

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